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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/092,613	03/08/2002	Lars J. Stenberg	45900-000561/US	8641
30593	7590	10/19/2005	EXAMINER	
HARNESS, DICKEY & PIERCE, P.L.C. P.O. BOX 8910 RESTON, VA 20195			GRIER, LAURA A	
			ART UNIT	PAPER NUMBER
			2644	

DATE MAILED: 10/19/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/092,613

Applicant(s)

STENBERG, LARS J.

Examiner

Laura A. Grier

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 22 July 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1,3-10,13,14,16,17 and 34 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,3-10,13-14, 16--17 and 34 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>7/22/05</u> . | 6) <input type="checkbox"/> Other: _____  |

**DETAILED ACTION**

***Claim Objections***

1. Claims 13 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. The limitation recited in claim 13 has already been recited in claim 1.

***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1, 13, 14, 16 and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over applicant's admitted prior art (AAPA) in view of Dent, U. S. Patent No. 6731763 and further in view of Akino, U. S. Patent No. 6453048.

Regarding claim 1, AAPA discloses an electret condenser microphone (ECM) coupled to output input of an amplifier. However, AAPA fails to disclose a series coupled capacitor between the microphone output and the DC input of the amplifier; and a pair PN junction diodes.

Regarding the series coupled capacitor, Dent discloses a microphone configuration wherein a capacitor (204) is coupled between the microphone output and the DC input of an amplifier (figure 28(a)).

It would have been obvious to one of the ordinary skill in the art at the time the invention was made to modify the invention of AAPA by incorporating a coupling capacitor for the purpose of blocking the DC voltage as taught by Dent (col. 12, lines 14-16), which reads on the series capacitor and reducing the current leakage, therein.

Further, AAPA and Dent fails to disclose the amplifier including the PN junction diodes.

Regarding the diodes, Akino discloses an amplifying circuit with a impedance converter for a condenser microphone. Akino's disclosure comprises a microphone output coupled to a pair of diodes, which reads on PN junction diodes, and to an amplifier, wherein, the impedance of the diodes comprise is a high (figure 1, col. 4, lines 68-67 – c ol.5, lines 1-4). However, Akino fails to disclose the impedance with the range of substantially equal to or greater than 1 GigaOhm. Having a range of substantially equal to or greater than 1 GigaOhm is of common practice for the impedance or resistance values of a microphone.

Thus, it would have been obvious to one of the ordinary skill in the art at the time the invention was made to modify the invention of AAPA and Dent by incorporating a standard range for the impedance value of a microphone for the purpose of providing compatible operational parameters and efficient performance.

Regarding claim 14, AAPA combination disclose everything claimed as applied above (see claim 1). AAPA combination (Akino) discloses a resistor coupled to the diodes which comprise the impedance converter circuitry (figure 1).

Regarding claim 16, AAPA combination disclose everything claimed as applied above (see claim 1). AAPA combination (AAPA) discloses a preamplifier circuit for a ECM.

Regarding claim 34, AAPA combination disclose everything claimed as applied above (see claim 1). AAPA combination (AAPA) obvious discloses the preamplifier in a miniature microphone as evident by the fact ECMs are typically used in small audio or audio related devices.

**Claim 3** are rejected under 35 U.S.C. 103(a) as being unpatentable over AAPA, Dent and Akino (AAPA combination) in view of Garcia.

Regarding claim 3, AAPA combination fails to disclose the amplifier and/or capacitor integrated as a monolithic chip. Garcia discloses a signal input (28), which may be an input of a microphone, which is coupled with a capacitor (12) with an input into and amplifier (30), wherein the circuitry may be integrated as a monolithic chip (col. 9, lines 44-52, col. 10, lines 1-6).

It would have been obvious to one of the ordinary skill in the art at the time the invention was made to modify the invention of AAPA combination by integrally configuring the amplifier and/or capacitor on a monolithic chip for utilization in compact and portable devices such as a hearing aid, cellular and other portable telephones, etc as taught by Garcia.

However, AAPA combination and Garcia fail to disclose the capacitor external to the monolithic chip. The position of various components of a circuit is known to vary for integrated circuits. Thus, it would have been obvious to one of the ordinary skill in the art at the time the invention was made to modify the invention of AAPA combination and Garcia by applying the

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capacitor external the monolithic chip as desired for the purpose of optimizing the size/structure and function of the chip.

**4. Claims 4-5** are rejected under 35 U.S.C. 103(a) as being unpatentable over AAPA combination in view of Garcia.

Regarding claim 4, AAPA combination discloses everything claimed as applied above (see claim 1). However, AAPA combination fails to disclose the amplifier and/or capacitor integrated as a monolithic chip. Garcia discloses a signal input (28), which may be an input of a microphone, which is coupled with a capacitor (12) with an input into and amplifier (30), wherein the circuitry may be integrated as a monolithic chip (col. 9, lines 44-52, col. 10, lines 1-6).

It would have been obvious to one of the ordinary skill in the art at the time the invention was made to modify the invention of AAPA combination by integrally configuring the amplifier and/or capacitor on a monolithic chip for utilization in compact and portable devices such as a hearing aid, cellular and other portable telephones, etc as taught by Garcia.

Regarding claim 5, AAPA combination and Garcia disclose everything claimed as applied above (see claim 4). However, AAPA combination and Garcia fail to disclose the monolithic chip made in a modern IC technology comprising one of a CMOS, JFET, P- or N-type MOSFET and MESFET. The examiner takes official notices that such IC technology such as the CMOS and MOSFETs were well known the art for configuring monolithic chips for amplifier. It would have been obvious to one of the ordinary skill in the art at the time the

invention was made to modify the invention of AAPA combination and Garcia by implementing the monolithic chip with CMOS or MOSFETS, which are commonly used components in the art, for the purpose of ensuring low distortion and efficient noise reduction in the signal transmission.

5. **Claims 6-10** are rejected under 35 U.S.C. 103(a) as being unpatentable over AAPA combination in view of Wang and Sun.

Regarding **claims 6-10**, AAPA combination discloses everything claimed as applied above (see claim 1). However, AAPA combination fails to disclose the capacitor as a low leakage capacitor of the floating plate type made as a polysilicon-to polysilicon, polysilicon-to-metal, and metal-to-metal capacitor or a combination thereof (herein, various material structure) compatible to modern IC technology.

Regarding the low leakage capacitor of the floating plate type and the various material structure, Wang discloses a semiconductor device with capacitor which has a floating layer, which indicates a floating plate type, wherein the capacitor may be composed of polysilicon-to-polysilicon, polysilicon-to-metal (or alternately, metal-to-polysilicon) or metal-to-metal electrodes (col. 3, lines 1-14, col. 4, lines 53-67), which reads on the various material structures compatible to modern IC technology.

It would have been obvious to one of the ordinary skill in the art at the time the invention was made to modify the invention of AAPA combination by providing a capacitor of the floating plate type which may be composed of the various material structures for the purpose of enabling various integrated circuit techniques that are commonly used in the art as taught by Wang.

Further in the respect to the low leakage characteristic of the capacitor, Sun discloses a capacitor with low leakage characteristic for semiconductor devices (abstract).

It would have been obvious to one of the ordinary skill in the art at the time the invention was made to modify the invention of AAPA combination and Wang by implementing a low leakage characteristic capacitor for the purpose of enable a small or low leakage of current to the amplifier.

6. **Claim 17** is rejected under 35 U.S.C. 103(a) as being unpatentable over AAPA combination in view of Rombach.

Regarding claim 17, AAPA combination disclose everything claimed as applied above (see claim 1). However, AAPA combination fails to disclose an electrical signal from a silicon-based condensor microphone.

Regarding the silicon-based condensor microphone, Rombach discloses a solid state silicon-based condensor microphone (abstract).

It would have been obvious to one of the ordinary skill in the art at the time the invention was made to modify the invention of AAPA combination by providing a silicon-based condensor microphone for the purpose of enabling a transducer that less sensitive to electrical interference.

### ***Response to Arguments***

7. Applicant's arguments with respect to claims 1, 3-10, 13-14, 16-17, and 34 have been considered but are moot in view of the new ground(s) of rejection.

The applicant argues that the Madaffari fails to disclose the capacitor in series between the microphone output and dc input of the amplifier and fails to reduce leakage. A new prior art



rejection has been provide that disclose a capacitor for block DC voltage between the microphone output and the amplifier input, a pair of diodes coupled in impedance circuit for the purpose of enabling an high impedance amplifier.

***Prior Art***

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Kern, U. S. Patent No. 6812788, discloses amplifying circuit.

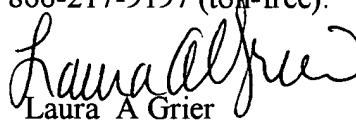
***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Laura A. Grier whose telephone number is (571) 272-7518. The examiner can normally be reached on Monday - Friday, 7:30 am - 4:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vivian Chin can be reached on (571) 272-7848. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Laura A Grier  
Primary Examiner  
Art Unit 2644  
October 17, 2005